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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/549,872

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EXAMINER

CLEMENTE, ROBERT ARTHUR

ART UNIT

PAPER NUMBER

1797

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/549,872	<b>Applicant(s)</b> SCHRAGE ET AL.	
	<b>Examiner</b> ROBERT A. CLEMENTE	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 28-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 28-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 February 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 28 - 43 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 28, 30, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by International Publication No. WO 97/40917 to Gillingham et al.

Gillingham teaches a method of preparing a z-filter media construction by coiling a sheet of filter media (48) about a central mandrel (54), or hub, as shown in figure 5. The filter media sheet (48), as shown in figure 4, includes a corrugated sheet (30) and a facing sheet (32). As disclosed in page 9 lines 26 - 28, the central mandrel (54) can be removable, thus a coreless coil would be formed. As disclosed in page 9 lines 28 - 30, Gillingham discloses it is possible to wind the media into other shapes, such as oblong or oval shapes. As disclosed in page 9 lines 30 - 31, the filter elements can also be selectively compressed, or distorted, to shape the filter elements. Thus, the coreless cylindrical filter element (52) inherently could be formed into an oblong, or obround, shape by compressing the element. The compressing step inherently would result in pressing on a side area of the coil in order to form the flatter sides of an oblong shape.

In regard to claim 30, as shown in figure 5 the filter element is coiled into a generally circular coil and can then be compressed to shape the element.

In regard to claim 31, as discussed above, Gillingham inherently teaches compressing the cylindrical coil into an oblong or oval shape. Oblong or oval shapes inherently have two opposite rounded ends.

***Claim Rejections - 35 USC § 103***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gillingham in view US Patent No. 6,743,317 to Wydeven.

Gillingham is discussed above in section 3. As shown in figure 5, the step of coiling in Gillingham comprises winding a corrugated/facing sheet strip including a backside sealant bead (40). Gillingham, however, does not distinctly disclose the material used to form the sealant bead (40). Wydeven discloses a similar coiled filter element, as shown in figure 4a. The flutes are alternatively sealed at both ends by sealant beads (40, 42). As disclosed in column 8 lines 47 - 50, the sealant beads (40, 42) can be formed by foaming urethane resins.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham to use a foaming urethane material to form the backside sealant bead as suggested by Wydeven since this type of material is known in the art to form an effective sealant in coiled filter elements.

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6. Claims 32 - 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gillingham and Wydeven as applied to claim 29 above, and further in view of US Patent No. 6,610,117 to Gieseke et al.

Gillingham and Wydeven are discussed above in section 5. Gillingham is used as the primary reference teaching distorting a coiled filter media to an oblong shape. Gillingham, however, does not distinctly disclose the media can be distorted to an oblong shape having two opposite round ends and two opposite straight sides. Gieseke teaches a filter that also uses z-filter media. As shown in figures 10 and 11, the filter construction (470) is arranged in a racetrack shape having two opposite rounded ends (511, 512) and two straight sides (513, 514). One of ordinary skill in the art would reasonably expect that a circular coil that can be compressed to an obround shape inherently can also be compressed into a racetrack shape.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham and Wydeven to compress the coil into a racetrack shape as suggested by Gieseke in order to allow the media to fit in a housing that accepts this well known configuration for z-filter media.

In regard to claim 33, as discussed above, Wydeven provides a urethane backside sealant bead that foams.

In regard to claim 34, as discussed above, Wydeven provides the reference teaching a sealant bead that foams. In order to foam, the sealant bead inherently must increase in volume. Wydeven, however, does not disclose the increase in volume of the urethane seal during cure. The increase in volume inherently is caused by gas bubbles

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formed in the urethane. One of ordinary skill in the art would reasonably expect that a larger increase in volume would result from more or larger gas bubbles in the urethane. More gas bubbles would provide a lighter sealant material, but would also reduce the strength and increase the porosity of the sealant. One of ordinary skill in the art predictably could determine the optimal degree of foaming, thus the optimal increase in volume, through routine experimentation to form a seal with the best balance of weight and seal strength.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham, Wydeven, and Gieseke to use a foaming urethane that increases in volume by 40% during curing in order given this value produces a sealant material having the desired weight and sealing properties. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in the claim, the applicant must show that the chosen dimensions are critical, see *In re Woodruff* 16 USPQ2d 1934.

In regard to claims 35 and 36, Gillingham is used as the primary reference teaching the steps of forming a coil and distorting it to an obround shape. The coil inherently includes a tail end of the media; however, Gillingham does not disclose sealing the tail end of the media along its length by a sealant. As shown in figure 1 and discussed in column 5 lines 40 - 45, Gieseke discloses a coiled filter media with a trail edge, or tail end, that is sealed along line "160" to secure it to the outside surface of the media coil. The sealant is disclosed to be a hot-melt sealant. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham

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and Wydeven to seal the tail end along its length to the outside of the media coil using a hot-melt sealant as suggested by Gieseke as a means to keep the media coiled.

In regard to claims 37 - 41, Gieseke discloses a housing member (650) and frame (605) on the racetrack shaped filter element shown in figure 10. The seal member (650) and frame (605) together form a housing seal. In the combination with Gillingham and Wydeven, the racetrack shape is formed from the step of distorting a circular coil. As disclosed in column 16 lines 3 - 6, the seal material can be made from polyurethane. As disclosed in column 12 lines 20 - 24, the frame (605) is secured to the outside of the filter media using an adhesive, thus the polyurethane seal can be considered to be secured to the outside of the filter material by the frame (605). The frame (605) can be considered a framework. Thus, in the combination, the method would include a step of mounting a framework on the racetrack shape media resulting from the distorting step. The seal member (650) forms a housing seal ring on the frame (605), or framework. As shown in figures 10 and 12, the frame (605) includes a truss system (612), or face lattice, that is integral with the frame (605) and inherently would be mounted on the filter media (470) with the frame (605).

In regard to claim 42, Gillingham is used as the primary reference teaching the steps of forming a coil and distorting it to an obround shape. As discussed above, the coil inherently includes a tail end of the media. Gillingham, however, does not disclose where the tail end is located after the distorting step. Gieseke is used as the secondary reference disclosing a racetrack shape media. Gieseke does not disclose where along the racetrack shape the tail end of the media is located. One of ordinary skill in the art

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would reasonably expect the media could be formed in the racetrack shape regardless of where the tail end is located. There is no evidence the location of the tail end is critical. The coil could be oriented in any manner as a design choice prior to being distorted so that the tail could be located anywhere along the outside of the media. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham, Wydeven, and Gieseke to locate the tail end along a straight side as a matter of design choice.

In regard to claim 43, as discussed above, the combination of Gillingham, Wydeven, and Gieseke provides a method to distort a coreless circular media coil into a racetrack shaped media coil. A coreless racetrack shaped inherently includes a center strip of the z-filter media construction. None of Gillingham, Wydeven, or Gieseke discloses how many flutes are located along this center strip. One of ordinary skill in the art would reasonably expect, however, that the length, and thus the number of flutes, of the center strip is related to the overall size of the coil. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Gillingham, Wydeven, and Gieseke to include at least six interdigitized flutes along the center strip in order to provide a filter coil of the desired size.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT A. CLEMENTE whose telephone number is (571)272-1476. The examiner can normally be reached on M-F, 7:00-3:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RAC

/DUANE SMITH/  
Supervisory Patent Examiner, Art Unit 1797